Amendments to the Specification:

Please replace the paragraph beginning at page 4, line 11 with the following amended paragraph:

As more solenoids are activated simultaneously, the current draw will consequently increase. If two solenoids are activated with similar characteristics then the current draw will almost double. The difference will depend on the resistance and length of the supplying cable. Currently most two-wire systems start to become unreliable when operating multiple solenoids over distances exceeding one or two kilometres (utilising standard irrigation cabling). Some manufacturers ~~manufactures~~ overcome this problem by specifying thicker or custom manufactured cabling, which greatly increases the cost of the installation.

Please replace the paragraph beginning at page 14, line 17 with the following amended paragraph:

The power generation circuit 42 operates under control of the microprocessor 40 to provide power to the solenoid 20 in accordance with instructions received from the controller 12 as will be described below. The power generation circuit 42 is of the same form as the power circuit 24 of the controller 12.

Please replace the paragraph beginning at page 15, line 5 with the following amended paragraph:

Figure 4a shows examples of a synchronisation pulse or synch pulse, a "zero" (or idle) ~~(oridle)~~ pulse and a "one" pulse. In this embodiment, the synchronisation pulse is twice the width of the zero and one pulses.

Please replace the paragraph beginning on page 15, line 25 with the following amended paragraph:

The microprocessor 40 of each decoder 18 in the remote stations is arranged to detect the presence of a synchronisation pulse. It then compares the following value of

the instruction byte with a stored value, and if the two are the same, the microprocessor 40 knows that the following activation pulses are commands to particular remote stations. Each remote station is then arranged to listen to all of the following pulses and to keep account of the number of pulses that have occurred. Each decoder has an address stored in the memory associated with the microprocessor 14 corresponding to the position of the pulse following the instruction byte that the decoder will take as its instruction. For example, if the decoder has an address of numeral 4, it will take the fourth activation pulse after the instruction byte as being its instruction.

a4 cont.

Please replace the paragraph beginning on page 16, line 7 with the following amended paragraph:

In the embodiment, the instruction byte has a value greater than 128, such that the first bit in the instruction byte is a one. The instruction given by the controller 12 in the embodiment is to activate the solenoid 20 attached to each decoder on or off. For example, an activation pulse being a zero will correspond with an instruction to the remote station to switch off ~~of~~ its solenoid 20, and an activation pulse being a one pulse corresponds with an instruction to that remote station to switch on its solenoid.

a5

Please replace the paragraph beginning on page 17, line 11 with the following amended paragraph:

Advantageously, because the communications from the remote stations to the controller 12 use ~~uses~~ a current draw mechanism these communications do not interfere with the instructions from the controller to the remote stations. Further, even if one of the remote stations fails such that its current draw mechanism is permanently swtiched on, this will still not affect ~~effect~~ the communications from the remote stations to the controller 12, since the controller 12 detects sudden changes in current in order to recover the communication signals, thus, the communication system is robust. Further, the communication system is also efficient with the idle stream and command streams allowing the controller 12 to receive ~~receiver~~ status information from all of the remote stations and to issue instructions to all of the remote stations in a ~~are~~ relatively rapid

a6 cont.

a6 cont.

manner. In contrast, previous systems have relied on instructions to each individual remote station, which can take a significant amount of time when a large number of remote stations are used.

Please replace the paragraph beginning on page 17, line 25 with the following amended paragraph:

a7

The microprocessor 22 of the controller 12 is also able to produce a third type of stream shown in figure 4d which is referred to as an individual stream. The stream comprises a sync pulse followed by a command byte, followed by a two byte address in binary coded decimal, followed by a four byte data portion and a one byte check sum. The stream also comprises ~~a~~ 64 idle pulses following the check sum. The address in the individual stream corresponds with an address of a decoder. The individual stream allows the controller 12 to issue instructions to a specific decoder, which allows more advanced facilities such as reprogramming a remote station's ~~stations~~ address or other parameters stored in the decoder, along with querying a particular remote station on the source of a fault or other situation. Thus, the communication system allows efficient and robust communications for the vast majority of communications with specific instructions sent to individual decoders as needed.

Please replace the paragraph beginning on page 18, line 8 with the following amended paragraph:

a8

Decoders are able to recognise individual streams from command streams by comparing the value of the command bytes that are stored in the memory associated with the microprocessor 40.

Please replace the paragraph beginning on page 18, line 17 with the following amended paragraph:

a9 cont.

Also, instead of sinking current to impose an 8-bit message on the positive and negative portions of the alternating power signal, the decoder 18 sinks ~~sink~~ current to impose a single bit on each of the positive and negative portions of the alternating power

a9 cont'd

signal. Thus, the controller 12 receives 2 bits of information from each decoder 18 during an idle stream. These 2 bits are interpreted as follows:

Please replace the paragraph beginning at page 20, line 18 with the following amended paragraph:

a10

By all of the remote stations synchronising to the synchronisation pulse, long term drift is eliminated. Advantageously, since the remote stations are powering their solenoids at spaced apart timing intervals ~~internals~~, their maximum current draw is also spaced apart to better average the power drawn by all of the remote stations from the pair of wires 16. This allows more remote stations to be powered, or alternatively for the length of the pair of wires ~~wire~~ 16 to be extended without affecting performance.

Please replace the paragraph beginning on page 20, line 27 with the following amended paragraph:

a11

For example, other phase angles ~~angels~~ can be used, e.g., 0°, 45°, 90° and 135°. Also, more than four phases can be used, as desired.

Please replace the paragraph beginning at page 21, line 1 with the following amended paragraph:

a12

Further, the type of modulation employed by the controller 12 and the decoders 18 may be varied without departing from the spirit of the invention. In one such variation, the decoders may sink current in a frequency-shift keying (FSK) manner, and the controller may determine what was sent ~~send~~ according to the frequency of the current sink pulses.